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ANNUAL REPORT

OF THE

WATER COMMISSIONERS

OF THE

CITY OF BINGHAMTON, N. Y.

1906.

JUN 25 1936

ANNUAL REPORT

OF THE

WATER COMMISSIONERS

OF THE

CITY OF BINGHAMTON,

STATE OF NEW YORK.

To the Mayor and Common Council.

FOR THE YEAR ENDING

DECEMBER 31st, 1906.

REPORT OF
WESTON & DANA COMPANY,
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JOB PRINTERS,
BINGHAMTON, N. Y.

Water Department of the City of Binghamton, N. Y.

BOARD OF WATER COMMISSIONERS

JEFFERSON KINGMAN, Pres..Term expires June 1, 1910
JOHN BAYLESS, Treasurer....Term expires June 1, 1907
B. S. CURRAN.....Term expires June 1, 1908
HENRY A. SMITH.....Term expires June 1, 1911
C. M. STONE.....Term expires June 1, 1909

OFFICERS

JOHN D. DAVIDSON.....Secretary
JESSIE L. DAVIDSON.....Bookkeeper
MOSES STOPPARD.....Superintendent
M. F. DILLON.....Assistant Superintendent
JOHN C. BUSH.....Superintendent of Meters
W. H. INGRAHAM.....Chief Engineer
BURT E. NELSON.....Bacteriologist

REPORT OF THE BOARD OF

Water Commissioners

OF THE

CITY OF BINGHAMTON, N. Y.

FOR THE YEAR 1906.

To the Honorable, the Mayor and Common Council of the City of Binghamton,: N. Y.

Gentlemen:

We herewith respectfully submit our thirty-eighth annual report of the Water Department for the fiscal year ending December 31st, 1906. The reports of the Secretary and Superintendent show full detailed statements of receipts and disbursements made, and conditions of the Works in general, to which your attention is called.

The receipts from all sources have been	$120,824.12
Balance on hand Jan. 1st, 1906	9,589.17
Disbursements	79,140.78
Balance on hand Jan. 1st., 1907	51,272.51

We have lowered the domestic meter rates from $6.00 per 37,500 gallons of water to $5.00 per 40,000 gallons, also the commercial meter rates from 16 cents as the maximum rate

per thousand gallons to 12 cents per thousand gallons. Lowering these rates has decreased our receipts by a considerable amount. We have installed 287 meters this year, making a total of 1478 meters in use; also have corrected many faulty service pipes. This, with other savings in use of water, enables us to report a material reduction in the amount of water pumped.

Water pumped during year 1905 (less amount used washing filters) . . . . . 2,405,645,384 gal.
Water pumped during year 1906 . . . . . 2,259,421,720 gal.
Decrease in No. of gallons pumped . . . . . 146,223,664 gal.

The Filter Plant continues to give general satisfaction. Regular examinations by our chemist, Mr. Nelson, show the removal of all impurities and a bacteriological efficiency of 99 per cent.

We have filtered 2,356,628,342 gallons of water, at a cost of $12,931.90. The filters are washed every day. The water used for this purpose is first filtered, and then pumped by a small engine direct. This accounts for more water being reported filtered than that pumped to City mains.

Amount of coal used for the year, 3661 tons, costing $7,518.60.

Our buildings and machinery are all in good condition.

January 31st, John Anderson, who has faithfully served this Board as Secretary for fourteen years, was suddenly taken from us. He will long be remembered for the courteous manner in which he conducted the duties of this office.

All of which is respectfully submitted.

B. S. CURRAN,
JEFFERSON KINGMAN,
H. A. SMITH,
JOHN BAYLESS,
CHAS. M. STONE,
Commissioners.

To the Board of Water Commissioners:

Gentlemen:

We, the undersigned Committee appointed to examine the accounts of the Secretary and Treasurer, have attended to that duty, and find the accounts correct.

We find cash as follows, December 31st, 1906:

In First National Bank, open account	$46,186.75
In First National Bank, Emergency Fund	5,085.76
Total	$51,272.51

January 9, 1907.

C. M. STONE,
H. A. SMITH.
Committee.

Secretary's Report.

To the Board of Water Commissioners of the City of Binghamton, N. Y.:

GENTLEMEN—Herewith you have my report as Secretary, for the year ending December 31st, 1906:

Receipts have been	$120,824.12
On hand Jan. 1st, 1906, in open account	4,652.60
On hand Jan. 1st, 1906, in Emergency Fund	4.936.57
Total	$130,413.29
Expended	79,272.51
Balance on hand, Jan. 1st, 1907	$ 51,272.51

In First National Bank in open account	$46.186.75
In First National Bank in Emergency Fund	5,085.76
Total	$51,272.51

Annexed you will find detailed statement of receipts and disbursements.

Respectfully submitted,

JOHN D. DAVIDSON,
Secretary.

RECEIPTS.

Number in Abstract.		
1	Received from Water Rents	$60,117.40
2	Received from Water by Meters	41,025.57
3	Received from Frontage Taxes	10,231.72
4	Received from Percentages	9.68
5	Received from Sprinkling Carts	150.00
6	Received from turning on Water	14.00
8	Received from putting in Service Pipe	2,152.14
9	Received from sale of material	1,870.15
10	Received from sale of Meters	3,048.55
11	Received from Builders' Uses	1,276.72
12	Received from Interest on Deposits	558.19
13	Received from Rents	370 00
		$120,824.12
	Cash on Hand Jan. 1st, 1906	9,589.17
	Total	$130,413.29

EXPENDITURES.

Number in Abstract.		
15	Superintendence and Office	$ 5,533.53
16	Pumping Service	25,271.37
17	Maintenance	6,144.67
18	Construction	11,576.19
19	Service Pipes	5,926.57
20	Meters Purchased	3,852.70
21	Water Rents Refunded	203.35
23	Machinery	1,668.78
23½	New Engines	6,328.14
24	New Buildings	2,627.82
26	Filter Maintenance (not including fuel)	9,924.36

Page in Claim Book		
27	Concrete River Protection Wall	83.30
		$ 79,140.78
	Balance on Hand Jan. 1st, 1907	51,272.51
	Total	$130,413.29

REFUNDS.

Page in Claim Book.		
346	M. Linehan	$ 2.50
	Rob't Douglas	1.00
	Port Dickinson Water Works	2.50
	F. E. Barnes	10.45
	Geo. Salspaugh	.95
	J. W. Manier	16.16
	S. F. Booth	7.60
	W. R. Miller	1.90
	H. A. Niles	9.50
	John McLarney	2.85
	Dan Ford	1.43
	P. F. Shea	18.53
	J. W. Ballard	.95
	B. A. Read	7.60
	Thos. C. Ryan	1.43
	Fred Allen	4.28
	J. W. Conklin	7.13
	W. D. Stiles	1.43
	E. Kiley	.47
	W. F. Briggs	7.60
	A. Austin	2.50
	O. H. Reeves	1.43
	O. J. Bush	7.60
	E. A. Schaff	2.85
	O. Whittemore	.10

Page in Claim Book		
	E. P. Tobey	1.00
	Lucy Elliott	10.00
	J. E. Austin	4.75
	W. B. Schmidt	1.00
	Ellen Hawley	2.74
	W. D. Levey	.50
	A. J. Ryan	2.00
	Wm. Murphy	2.50
	M. McDowell	.95
	Spencer & Van Atta	2.50
	Altoona Decorating Co.	1.00
	Chas. Gardener	3.00

ITEMIZED STATEMENT OF EXPENDITURES.

Page in Claim Book.		
346	C. M. Blewer	2.85
	C. S. Williams	3.80
	C. Bean	1.00
	S. S. Allen	.95
	G. A. Darling	.50
	F. L. Welsh	2.00
	J. W. Ballard	27.70
	J. G. Orton	.95
	C. Klee	1.25
	B. McGinnis	.50
	Mrs. F. E. Young	3.00
	D. H. Mack	2.85
	M. Kelly	1.42
		$203.35
369	Altoona Decorating Co.	1.00
353	American Bridge Co.	700.00

Page in Claim Book		
2	Anderson, John	144.25
367	Andrews, Jas. H.	18.40
357	Ashcroft Mfg. Co.	35.15
25	Barney, Chas.	690.71
352	Ballard, J. W., & Co.	105.18
349	Babcock, Hinds & Underwood	1,066.41
343	Bartlet & Co.	23.97
362	Bankers' Surety Co.	40.00
365	Babcock & Wilcox Co.	5,615.76
359	Bayer, C. A.	7.50
342	Bean & Co.	15.80
351	Binghamton Oil Refining Co.	190.33
353	Binghamton Electric Construction Co.	109.11
348	Binghamton Gas Works	62.79
362	Binghamton R. R. Co.	60.00
363	Binghamton Press	38.81
364	Binghamton Boiler Compound Co.	27.50
335	Binghamton Post Office	96.04
357	Binghamton Republican	32.00
358	Binghamton Directory Co.	4.00
367	Binghamton Coal Co.	67.20
367	Bingham & Taylor	562.45
359	Binghamton Produce Co.	3.66
368	Bishop, Junis F.	1.00
353	Blanchard Coal Co.	649.98
366	Boston Belting Co.	36.19
19	Brainard, C. L.	968.50
353	Brown, Lent & Pett	41.00
345	Broughton & Marland	2.50
364	Brown, Lewis H.	36.40
28	Bush, John C.	950.30
354	Bush, B. K.	259.99
370	Brigham, H. H.	3.70
362	Buckley, L. J.	7.50
370	Bump Bros.	2.00

Page in Claim Book		
364	Barker, M.	8.00
362	Cafferty, L. M.	.25
363	Callahan & Douglas	41.18
336	Carrington & Ford	1,709.50
361	Canavan, J. J.	.25
343	Central N. Y. Car Service	3.00
365	Christie, Walter	7.35
368	City Coal Co.	393.54
31	Clifford, Daniel	638.75
44	Clifford, John	538.35
13	Courtney, W. J.	661.75
21	Connolly, T. D.	956.64
46	Construction	5,022.93
36	Courtney, Patrick	469.44
342	Contract Process Co.	2,952.10
357	Cole, Chas. B.	64.00
368	Coal Dealers' Supply Co.	16.65
355	Croffutt, V. L.	9.91
355	Craftsmen Club	12.50
362	Crossett, Frank	10.55
366	Crossett, E. S.	2.45
363	Crounse, A. F.	15.80
356	Crawford, John	1.50
365	Crandall-Stone Co.	5.59
365	Crocker & Ogden	26.31
370	Cutler Ice Co.	10.70
3	Davidson, John	1,500.00
4	Davidson, Jesse	520.00
355	Dailey, Wm., & Son	99.25
347	Davis & Son, A. L.	64.86
359	Davis, D.	22.44
368	Davidge & Moody	.56
351	D., L. & W. R. R. Co.	8,242.04
338	D. & H. Lime & Cement Co.	.98
361	Del. & Hudson Co.	81.27

Page in Claim Book		
358	Decker, Ira S.	1.00
30	Dillon, M. F.	1,799.20
356	Diamond Foundry Co.	304.82
10	Donohue, John	754.00
14	Daughton, M. J.	533.05
17	Donohue, W. J.	569.49
37	Driscoll, Con.	537.69
363	Drass, S. B.	354.79
337	Drummond, M. J.	361.89
357	Dudley & Foster	4.00
358	Dunham & Co., C. A.	6.55
361	Dunning Grocery Co.	40.00
23	Dwight, Ben.	755.04
35	Dwyer, Patrick	208.69
366	Eddy Valve Co.	61.90
350	Ellis W. Morse & Co.	600.30
355	Electric Printing Co.	69.75
364	Elliott, S. M.	2.01
341	Empire Grain Elevator Co.	79.75
339	Erie R. R. Co.	67.46
365	Eureka Tent & Awning Co.	24.70
334	Express Co.s	29.85
364	Ferguson & Bergin	20.00
367	Fire & Water Engineering Co.	3.00
22	Florence, L. W.	754.00
12	Ford, Jerry	532.00
26	Ford, Wm.	712.09
32	Ford, Dan	543.83
33	Ford, John, No. 1	537.17
38	Ford, M.	530.54
43	Ford, John, No. 2	273.32
350	Ford, Beach & Powell	62.00
360	Ford, M. I.	27.00
363	Fostoria Novelty Co.	1.00
353	Freeman, E. G.	67.82

Page in Claim Book		
16	Gallivan, T.	526.92
358	Galpeer, S.	5.78
348	Gaylord & Eitapence	13.72
341	Garlock Packing Co.	42.79
366	Globe Laundry	1.90
367	Goff, Crary & Smith	6.12
355	Graham, W. H.	10.00
367	Green, Tweed & Co.	3.30
9	Haley, Con.	751.93
340	Haines, Jones & Cadbury	14.16
356	Harris, Geo. M.	13.32
339	Hanley, J. C. & Co.	354.75
340	Herald Co. of Binghamton	26.50
365	Heath, Robt.	13.60
360	Hecox, Wm.	12.00
369	Hills, McLean & Haskins	2.97
366	Holly Mfg. Co.	60.00
5	Ingraham, W. H.	1,300.00
333	Innes & Demerest	6.30
356	Jones, Ed. H.	9.75
361	Judd, J. A.	9.50
360	Kemp, C. M., Mfg. Co.	2.28
41	Lawler, John	296.25
355	Lawrence Paint Co.	13.30
366	Lacey, S. O.	15.00
363	Lee, P. H.	.90
364	Leonard, Geo. C.	25.00
24	Lynch, Patk.	748.85
333	Lynch, J. W.	190.80
345	Lyon, A. J., & Sons	45.64
357	Mathews, I. S., & Sons	.80
360	Mason, Jones & Co.	6.01
361	Magoris's Home Treatment Co.	1.04
15	McLarney, John	755.52
369	McKallor, E. C., Drug Co.	1.25

Page in Claim Book		
369	McKinney, Chas., & Co.	72.00
358	McKinney & Foley	2.05
362	McIntyre & Hull	89.97
362	McManamy & Rodman	9.75
6	Miller, E. E.	1,014.00
357	Miller, W. R.	8.94
363	Milks Electric Co.	1.25
369	Millard, R. B.	4.00
354	Moore & Wheeler	8.05
364	Morse, John C.	10.00
355	Municipal Journal	3.00
362	Mueller Mfg. Co.	226.01
359	Murphy, Mary	1.05
353	National Lead Co.	65.27
352	N. Y. & Pa. Telephone Co.	160.97
336	Neptune Meter Co.	503.70
361	Norwood Engineering Co.	76.63
365	Osgood Scale Co.	15.00.
29	O'Brien, John	549.50
34	O'Brien, Jas.	543.56
45	Nelson, Bert	600.00
354	Persells & Mack	.20
334	Pittsburg Meter Co.	1,227.58
20	Pratt, D. S.	964.64
346	Refunds	203.35
337	Rensselaer Mfg. Co.	675.00
369	Rider, John, Exr.	75.00
39	Ryan, Thos.	280.88
40	Ryan, T. C.	523.59
42	Ryan, Andrew	263.32
354	Sanders, H. H.	10.50
370	Sanders, A. H.	1.75
358	Salisbery, F. R.	226.07
360	Salvation Army	11.75
7	Scott, Wm.	991.71
11	Schermerhorn, Chas.	754.00
347	Shapley & Wells	4,620.05

Page in Claim Book		
369	Signor, A. M.	4.00
366	Smith & Bump	120.13
8	Smith, R. C.	1,014.00
366	Smith Bros.	21.66
27	Snicale, Geo.	551.01
1	Stoppard, Moses	2,499.64
349	Standard Oil Co.	164.78
353	Stuart Print Shop	33.80
344	Stevens & Co.	14.00
356	Stevens, C. A.	11.37
365	Stickley & Brandt	4.72
359	Stafford, John H.	1.06
368	Strange & Skinner	5.65
368	Strong Machinery Supply Co.	9.75
356	Swank, C. W., & Co.	12.00
18	Taylor, W. R.	722.23
357	The Evening Herald	36.00
335	The Eaton, Cole & Burnham Co.	6.48
358	The Goheen Mfg. Co.	90.28
367	The E. C. Smith Lumber Co.	11.50
369	The Luce Electric Plating Wks.	.50
360	The A. Wilhelm Co.	4.00
356	Titchenor, E. H. & Co.	1.57
358	Turner, Chas. H.	8.65
360	Union Water Meter Co.	12.22
368	United States Casualty Co.	69.38
357	Van Alystene, John	8.00
359	Vosbury, E. D.	2.27
353	Walworth Mfg. Co.	334.33
338	Warren Foundry & Machine Co.	4,438.80
332	Water Works Equipment Co.	15.33
359	Waldron, N. W.	8.00
354	Western Union Telegraph Co.	.33
355	Wells & Brigham	9.00
356	Wells Light Mfg. Co.	.50
361	Weslar, Chas., & Co.	2.25
367	Wheeler, Geo. B.	28.48
346	Williamson Mfg. Co.	2.13
364	Winkler, A.	28.10
368	Williams, J. E.	2.00
344	Wood, R. D., & Co.	900.62
361	Youngs, D. W.	1.06
		$79,140.78

Report of Superintendent.

To the Honorable Board of Water Commissioners,
City of Binghamton, N. Y.

Gentlemen:

Following the custom and the law, I beg to submit herewith my report for the year just closed.

Because of the new financial obligations imposed upon the Board, we have necessarily practiced the utmost economy, and consequently have less to report than during the year next preceding. But we have managed to accomplish considerable in the way of betterments, notwithstanding, and it is perhaps fair to say that the whole system is in better condition than ever before. The work can never be said to have been completed, however. The wear is great, and the continued development of Binghamton makes constant new calls upon the Water Department. We shall endeavor to meet these new demands, and continue to serve to our fellow citizens an abundance of water, the quality of which is equal to any. To do this, and to keep the whole plant in good order, calls for "eternal vigilance."

The work in detail is set forth as follows:

WATER MAINS.

New mains laid during the year 1906 reached 6,257 feet, and were located as below:

Cleveland Avenue	6 inch	690 feet
Grand Avenue	4 inch	357 feet
Carhart Avenue	6 inch	590 feet

Newton Avenue	6 inch	20 feet
Duane Street	6 inch	872 feet
James Street	6 inch	231 feet
Davis Street	6 inch	526 feet
Millard Avenue	6 inch	587 feet
LeRoy Street	12 inch	102 feet
LeRoy Street	6 inch	237 feet
South Mozart Street	6 inch	601 feet
Curran Avenue	6 inch	590 feet
Louisa Street	6 inch	698 feet
For Charlotte St. Shoe Fact'y	6 inch	156 feet
	Total	6,257 feet

A few sections of our mains are within the reach of frost, and we have lowered 3,522 feet, on the following streets:

Milford Street	6 inch	1,410 feet
Pearne Street	6 inch	638 feet
Munsell Street	6 inch	539 feet
Beethoven Street	8 inch	695 feet
Vine Street	6 inch	240 feet
	Total	3,522 feet

Note.—Considerable of this expense is due each year to the fact that the Street Department changes a grade occasionally, and cuts, if any, leave our pipes too near the surface.

In addition to the above, we have relaid the Charlotte Street line west from Hamilton Street, replacing 454 feet of 4 inch pipe with 6 inch, to give better fire protection to the new factory district.

The total mileage of mains in the City is now 81 miles and 2,323 feet, of the following sizes:

	Miles	Feet
1 inch		948
2 inch		1,823

4 inch	11	4,434
6 inch	43	3,992
8 inch	15	962
10 inch	2	122
12 inch	6	117
16 inch		771
20 inch	1	1,500
24 inch		1,094
36 inch		2,400

HYDRANTS.

Have added eight fire hydrants in 1906, and our total is now 785. Also a large number have been reset, repaired, or improved, and all are now in good working condition.

STREET VALVES.

We have placed 27 new gates on the street mains, and removed two, making the net increase 26, and the total now in use 1,221, with sizes as follows:

24	2 inch
331	4 inch
614	6 inch
151	8 inch
21	10 inch
55	12 inch
4	16 inch
12	20 inch
7	24 inch
3	36 inch
1,222	

SERVICE PIPES.

We have continued the work of correcting faulty service pipes during the season just closed, and have to report 91 cases where improve-

ments have been made, thereby lessening the waste of water in freezing weather. New taps made during the year, 238. Total services now 8,825.

INTAKE PIPES.

Both intakes are in good condition for the winter. We have removed the deposit of flood trash and silt from below the old intake, and put it in the best of order for an emergency. This intake is never used unless the main intake is undergoing repairs. But it must be ready for use at all times.

BUILDINGS.

We have completed the improvements in the boiler house. Have removed the old wooden truss roof, and substituted one of concrete, carried by metal I beams, making a light, well-ventilated, fire-proof building, which is a notable improvement in every way.

All the buildings at the pumping station, except the Engineer's residence and the gate house, have been painted this year. All are now in good condition excepting the alum room. This building requires a new roof. The coal sheds have been extended, to provide for separate storage of soft coal, and a new galvanized iron roof, painted both top and under sides, has been placed over all the pockets. The coal storage facilities are in the best possible condition.

BOILERS AND STEAM LINE.

The new Babcock & Wilcox boilers have been installed, and are now regularly in the service. Thus far they seem quite satisfactory.

A new and up-to-date steam line has been completed. This was one of our greatest necessities. Under the old conditions we could not pack a leaking joint without serious inconvenience. The new line is practically double, and any engine, boiler, or section can be cut out as necessity calls.

FILTRATION PLANT.

The filters continue working well. We have added a car-load of sand to the beds this season to make good the gradual waste. Some obstinate leaks in and about the sedimentation basins have been stopped.

and there are others yet to be attended to. In the original construction of the building there was no provision made for cleansing the canal supplying the raw water to the beds. This defect we are preparing to remedy in the immediate future.

The report of Chemist Nelson, printed herewith, will furnish interesting statistics relating to the subject in hand.

PUMPING MACHINERY.

All the pumps are working well, thanks to the watchful care of Chief Ingraham and his assistants. Number one—the oldest—will require new jacketing on the cylinders, and some general overhauling, but nothing of an expensive character. The wear of such heavy machinery is naturally great, and the periodical taking up of slack, etc., is only an incident. As a whole, all the machinery is in good condition.

RIVER WALL.

No defects of any kind have developed during the year. In accordance with the instructions of your Honorable Body, we have all preparations made for extending the safety hand-railing the whole length of the wall, and hope to complete the work this winter.

METERS.

We have installed 294 new meters during the year, and removed eight. The total number now in the service is 1,478, ranging in size from ⅝ inch to 6 inch, as follows:

⅝ inch	1,176
¾ inch	180
1 inch	44
1½ inch	15
2 inch	24
3 inch	15
4 inch	21
6 inch	3
Total	1,478

The utmost care has been taken in the installation of meters, and a portion of the reduced pumpage is no doubt due to the use of these water-savers.

RECOMMENDATIONS.

The good results showing from improving the system of piping all over the City suggest that the Commissioners allow and provide for a continuance of work along this line.

The cottage and the gate house at the Pumping Station should be painted next spring. Also the sheds and office building on Water Street.

I renew the recommendation of last year, that the interior of the two front rooms in the office building be renovated. Steel will be a proper substitute for cracked plaster on walls and ceiling.

The metal roof on the alum room will require renewal this season.

STATISTICS.

Population, estimated on basis of last census, 45,000.

System, direct pressure—65 pounds domestic, and 80 pounds for fires.

Source of supply, Susquehanna River.

Pumping Engines, three. Capacity of each, 12,000,000 gallons in 24 hours. Kinds, two Holly-Gaskill four-cylinder compound condensing, and one Snow, cross-compound condensing.

Amount of water pumped in 1906, 2,259,421,720 gallons.
Average per day, 6,190,196 gallons.
Consumption, per capita, daily, 137.5 gallons.

All branches of the Department may be said to be running smoothly, thanks to a business-like and far-seeing Board of Commissioners, who are always ready to provide ways and means to build up a plant of which every citizen may consistently be proud.

This report is respectfully submitted by

M. STOPPARD,
Superintendent.

Sanitary Analysis of City Water Supply--1906

DATE	SOURCE	PARTS PER MILLION										COLONIES BACTERIA PER C. C.	GAS FORMATION	EFFICIENCY
		TURBIDITY	ALKALINITY	SOLIDS	LOSS ON IGNITION	OXYGEN CONSUMED	FREE AMMONIA	ALBUMENOID AMMONIA	NITRATES	NITRITES	CHLORINE			
January 3	Raw	1	61.	93.3	2.66	0.800	0.065	0.068	0.50	0	3.89	700	x	99.37
January 3	Filtered	0	52.	95.0	2.00	0.440	0.055	0.035	0.55	0	3.80	5	0	99.37
January 23	Raw	50	45.	137.5	13.5	0.286	0.065	0.235	0.55	0	3.67	17600	x	99.45
January 23	Filtered	0	33.	81.5	4.5	0.133	0.060	9.110	0.50	0	3.71	90	0	99.45
February 3	Raw	600	38.	750.0	150.	0.423	0.172	0.515	0.23	Traces	3.31	7500	x	99.37
February 3	Filtered	0	25.	43.0	3.5	0.162	0.158	0.112	0.23	Traces	3.31	47	0	99.37
February 21	Raw	1	71.	110.0	21.1	0.096	0.385	0.094	0.42	Traces	3.31	150	0	98.0
February 21	Filtered	0	65.	93.	5.3	0.042	0.380	0.043	0.42	Traces	3.31	3	0	98.0
February 23	Raw	150	63.	186.5	45.5	0.163	0.500	0.055	0.25	0	5.29	6000	x	99.34
February 23	Filtered	0	50.	84.5	7.5	0.068	0.485	0.035	0.25	0	5.29	40	0	99.34
March 19	Raw	3	66.	87.5	16.3	0.165	0.100	0.112	0.35	Traces	3.95	700	x	99.57
March 19	Filtered	0	55.5	100.0	5.5	0.073	0.066	0.033	0.35	Traces	3.95	3	0	99.57
March 26	Raw	3	63.5	85.0	6.5	0.380	0.020	0.033	0.53	0	5.00	300	0	98.07
March 26	Filtered	0	55.0	93.0	2.5	0.165	0.020	0.010	0.55	0	5.31	4	0	98.07
March 28	Raw	300	27.	375.5	33.5	0.266	0.260	0.335	0.22	Traces	3.43	3600	x	99.39
March 28	Filtered	0	13.	97.5	5.5	0.086	0.150	0.100	0.22	Traces	3.43	22	0	99.39
April 6	Raw	250	35.	325.	20.5	0.442	0.145	0.220	0.22	Traces	4.60	12000	x	99.22
April 6	Filtered	0	20.	90.	3.5	0.220	0.075	0.010	0.30	Traces	4.60	85	0	99.22
April 16	Raw	250	26.	310.	80.	0.52	0.167	0.285	0.35	0	5.31	3600	0	99.53
April 16	Filtered	0	12.	75.6	4.5	0.24	0.160	0.100	0.45	0	5.31	17	0	99.53
April 28	Raw	3	65.	82.0	5.5	0.112	0.065	0.072	0.40	0	6.21	3000	0	99.64
April 28	Filtered	0	60.	85.3	3.5	0.080	0.065	0.034	0.45	0	6.21	11	0	99.64
May 3	Raw	3	67.	87.5	4.5	0.080	0.120	0.055	0.30	0	6.37	800	0	98.63
May 3	Filtered	0	60.	83.0	3.0	0.033	0.095	0.020	0.45	0	6.72	11	0	98.63
May 16	Raw	2	65.	85.5	5.5	0.140	0.070	0.140	0.30	0	7.04	7500	0	99.86
May 16	Filtered	0	60.	82.5	3.0	0.066	0.020	0.070	0.55	0	7.04	11	0	99.86
May 17	Raw	130	62.	210.	55.3	0.224	0.072	0.385	0.23	Traces	7.04	20000	0	99.05
ay 17	Filtered	0	45.	78.5	3.0	0.100	0.060	0.035	0.23	0	7.04	100	0	99.05
May 23	Raw	3	67.	80.0	5.5	0.130	0.066	0.060	0.65	0	6.37	1100	0	99.19
May 23	Filtered	0	60.	82.5	2.5	0.066	0.060	0.035	0.65	0	6.37	9	0	99.19
June 12	Raw	50	59.	110.	18.5	0.366	0.120	0.100	0.50	0	4.63	800	0	99.25
June 12	Filtered	0	44.	85.5	5.5	0.180	0.100	0.060	0.55	0	4.63	6	0	99.25
June 28	Raw	5	58.	76.5	7.3	0.160	0.048	0.055	0.45	0	3.54	5000	0	99.3
June 28	Filtered	0	53.	82.7	3.4	0.080	0.040	0.030	0.45	0	3.54	36	0	99.3

Sanitary Analysis of City Water Supply—1906

DATE	SOURCE	PARTS PER MILLION										COLONIES BACTERIA PER C. C.	GAS FORMATION	EFFICIENCY
		TURBIDITY	ALKALINITY	SOLIDS	LOSS ON IGNITION	OXYGEN CONSUMED	FREE AMMONIA	ALBUMENOID AMMONIA	NITRATES	NITRITES	CHLORINE			
July 1	Raw	150	38.	190.	28.	0.460	0.216	0.100	0.35	0	6.31	11000	0	99.23
July 1	Filtered	0	24.	64.5	6.5	0.243	0.185	0.045	0.35	0	6.31	85	0	99.23
July 8	Raw	10	46.	84.5	9.5	0.240	0.088	0.080	0.45	0	5.28	1100	0	98.09
July 8	Filte ed	0	40.	76.	4.	0.110	0.080	0.045	0.45	0	5.28	13	0	98.09
August 2	Raw	3	60.	76.3	11.6	0.340	0.125	0.085	0.55	0	3.57	180	0	98.09
August 2	Filtered	0	55.	78.5	4.5	0.270	0.315	0.040	0.85	0	3.57	2	0	98.09
August 9	Raw	40	44.	94.5	18.2	0.366	0.185	0.220	0.45	0	4.76	2500	0	98.
August 9	Filtered	0	40.	68.0	6.4	0.166	0.160	0.100	0.45	0	4.76	25	0	98.
August 28	Raw	85	48.	165.	24.5	0.340	0.165	0.230	0.55	0	4.35	2200	0	98.07
August 28	Filtered	0	40.	87.5	6.3	0.180	0.090	0.095	0.55	0	4.35	29	0	98.07
September 4	Raw	3	55.	74.5	9.4	0.104	0.105	0.185	0.50	0	5.28	1700	0	98.31
September 4	Filtered	0	49.	81.3	3.5	0.080	0.085	0.080	0.50	0	5.28	28	0	98.31
September 19	Raw	3	63.	86.0	4.3	0.133	0.110	0.085	0.55	0	4.73	300	0	98.7
September 19	Filtered	0	55.	91.3	2.	0.065	0.090	0.045	0.55	0	4.73	4	0	98.7
October 2	Raw	3	60.	76.3	3.3	0.132	0.095	0.045	0.50	0	4.65	650	0	99.7
October 2	Filtered	0	55.	80.5	1.6	0.085	0.055	0.020	0.50	0	4.65	2	0	99.7
October 16	Raw	2	67.	86.3	4.6	0.087	0.088	0.045	0.40	0	6.67	150	0	99.87
October 16	Filtered	0	58.	89.7	2.2	0.034	0.040	0.020	0.40	0	6.67	2	0	99.87
October 22	Raw	80	44.	118.5	16.5	0.411	0.110	0.476	0.22	0	3.87	8000	x	98.75
October 22	Filtered	0	30.	58.4	3.6	0.200	0.100	0.235	0.22	0	3.87	100	0	98.75
November 5	Raw	3	53.	76.	4.5	0.133	0.080	0.085	0.40	0	5.67	900	x	99.12
November 5	Filtered	0	46.	82.	2.2	0.058	0.070	0.038	0.40	0	5.67	8	0	99.12
November 19	Raw	35	37.	115.	50.0	0.416	0.050	0.125	0.25	0	3.52	23000	x	99.53
November 19	Filtered	0	30.	82.5	25.0	0.180	0.040	0.030	0.25	0	3.52	110	0	99.53
December 1	Raw	2	47.	78.8	7.5	0.088	0.085	0.210	0.30	0	4.16	4100	x	99.27
December 1	Filtered	0	38.	85.	2.5	0.030	0.050	0.080	0.30	0	4.16	33	0	99.27
December 7	Raw	130	35.	127.5	17.5	0.480	0.080	0.370	0.20	0	1.800	7800	x	99.49
December 7	Filtered	0	20.	60.	7.5	0.200	0.060	0.075	0.20	0	1.800	40	0	99.49

Statistical Table

1906	Gallons Pumped Monthly	Gallons Pumped Daily	Average Height Water in Well	Domestic Pressure	Pounds Coal Used Monthly	Pounds Coal Used Daily	Number of Fires	Duration of Fires	Fire Pressure	Domestic Head	Fire Head	Duty
Month	Gallons	Gallons	Ft. In.	Lbs.	Lbs.	Lbs.	No.	H. M.	Lbs.	Feet	Feet	Duty
January	198,532,760	6,404,280	19.10	65	660,600	21,309	8	4.55	80	168.66	203.31	76,861,537
February	207,895,260	7,424,830	19.3	65	686,700	24,525	4	3.9	80	169.25	203.90	77,653,792
March	204,868,460	6,608,660	19.8	65	715,900	23,093	8	13.57	80	168.83	203.48	73,448,022
April	176,643,260	5,888,141	19.10	65	648,100	21,603	6	4.31	80	168.66	203.31	69,706,440
May	180,044,460	5,807,885	19.10	65	651,300	21,009	7	4.28	80	168.66	203.31	70,701,932
June	175,336,220	5,845,544	19.7	65	648,100	21,603	7	2.11	80	168.91	203.56	69,058,866
July	182,214,580	5,877,889	19.10	65	697,200	22,490	3	3.33	80	168.66	203.31	66,840,741
August	180,418,340	5,819,946	19.8	65	645,700	20,829	4	3.33	80	168.83	203.48	71,532,413
September	185,213,740	6,173,791	19.9	65	650,000	21,660	5	1.8	80	168.75	203.40	72,913,339
October	187,731,680	6,055,860	19.10	65	714,300	23,041	1	.10	80	168.66	203.31	67,194,726
November	169,469,480	5,648,982	20.2	65	617,400	21,580	5	3.18	80	168.33	202.98	66,816,494
December	211,053,480	6,808,176	19 9	65	791,300	25,525	1	.30	80	168.75	203.40	75,074,280
Totals	2,259,421,720				8,156,600		59	45.23				857,802,578
Average		6,190,196	19 9			22,346				168.74	203.39	71,483,548

Coal used to pump to city mains, 4,486,130 lbs.

Gallons pumped to city mains for each pound coal, 505.

Coal used for 5 small engines, and for heating, etc., 3,670,470 lbs.

Analysis of City Water.

Board of Water Commissioners:

Gentlemen: I submit the following mineral analysis of the city water made on a sample taken June 5th, 1906, in the hope that like the older ones it may be of some use to certain industrial concerns.

	Parts per million.
Free carbonic acid gas	11.23
Total fixed solids	97.41
Silica	7.13
Iron oxid	0.09
Aluminum oxid	0.58
Calcium oxid	33.08
Magnesium oxid	1.65
Potassium	1.65
Sodium	4.55
Chlorin	4.60
Sulphuric oxid	12.24
Fixed carbonic acid	28.40
Nitrogen as ammonias	0.087
Nitrogen as nitrates	0.55

BURT E. NELSON.

June 14, '06.

Water Rates.

CULINARY USE.

	Per Year
Each and every family, not exceeding six persons	$3.00
More than six persons, special assessment.	

WATER CLOSETS.

One closet, each family	$3.00
Each additional closet for same family	1.00
Hopper closet not permitted unless on meter service.	

BATHS.

One tub for family use	$3.00
Each additional tub for same family	1.00
Public bath tub, first tub	5.00
Each additional tub	2.00

BOWLS.

Each bowl	$1.00

LAUNDRY TUBS.

One set in residence	$2.00

HOSE.

Hand hose for sprinkling streets, lawns, washing windows, or any other use where the premises are not more than 50 feet in width $3.00

Where premises are more than 50 feet, special assessment.

Hose attached to lawn sprinklers or any device for holding hose other than by hand 7.00

The use of hose and lawn sprinklers limited to not more than three hours per day, and confined to hours as follows: 6 to 7 A. M. and 6 to 8 P. M. No person allowed to sprinkle premises adjoining or opposite.

FOUNTAINS.

(To be used not to exceed eight hours per day, from May 1 to Nov. 1.)

1-16 inch jet ..... $ 5.00
1-8 inch jet 10.00
1-4 inch jet 30.00
1-2 inch jet 100.00

When left constantly running, three times these rates.

STABLES.

Private carriage horse $4.00
Each additional horse 2.00
Work horse 2.00
Hotel, boarding or feed stables, meter or special assessment.
Each self-closing urinal 2.00
All others by meter.

BARBER SHOPS.

First chair, including basin $5.00
Each additional chair 2.00

BLACKSMITH SHOPS.

Blacksmith shop $5.00

LAUNDRIES.

Laundries by meter.
Laundries too small to meter, special assessment.

BARS.

Bar faucet	$10.00
Closet	4.00
Self-closing urinal	2.00
Beer pump	5.00
Use of hose	3.00

PHOTOGRAPH GALLERIES.

Photograph galleries, special assessment.

RESTAURANTS.

Restaurants	$10.00 to $30.00

CREAMERIES.

Creameries, according to size	$10.00 to $20.00

Or, by meter.

BOILERS.

For heating building	$3.00 to $5.00
For steam engines, 2 H. P. or less	5.00
For each additional H. P.	2.00

BAKERIES.

Not less than	$10.00

MOTORS.

	Per Year
For church organs	$25.00

For motive power, meter.

BUSINESS PLACES.

Offices, three persons or less	$5.00
Stores, five persons or less	7.00

When more than five persons, special assessment.

FOR BUILDING PURPOSES.

For each perch of stone for which water is used to mix mortar	$ .05
For each 100 yards of plastering	.30
For each 1,000 brick	.10
For each barrel cement	.09
Trench for pipe sewers, per lineal foot	.02

METER RATES AND REGULATIONS

ADOPTED BY THE BOARD OF WATER COMMISSIONERS.

Resolved, That no hotel, factory, livery stable, tannery, brewery, or railroad company shall be allowed to take the city water except through a meter; and that the Superintendent be instructed, and is hereby ordered to place upon each of these places above designated, as shall desire the use of the city water, a suitable meter, and that the rate per thousand gallons for such measured water shall be as follows, payable every two months:

For a daily average of less than 1,000 gallons	$ .12
For a daily average of 1,000 to 4,000 gallons	.10
For a daily average of 4,000 to 6,000 gallons	.08
For a daily average of 6,000 and upward	.06

Resolved, That the clerk be instructed to prepare a book showing the consumption of each party or parties using measured water, the amount and rate that is paid, and also the total monthly amount of measured water that is used.

Resolved, That in lieu of existing rates families may take measured water by purchasing a meter, which will be furnished and set by this department, and paying the minimum sum of $5.00 per annum, which will

entitle them to 40,000 gallons per year. In case a larger quantity is used a charge of 12 cents per 1,000 gallons for such excess will be made.

The Water Department reserves the right to order a meter to be placed on any service pipe whenever it is deemed expedient so to do, and thereafter to charge meter rates for water used. All water passing through a meter will be charged for whether used or wasted.

DAMAGE TO METER.

Any damage which said meter may sustain, resulting from the carelessness of the owners, his agent or tenant, or from the neglect of either of them to properly secure and protect the same, including any damage that may result from allowing said meter to become frozen or to be injured from hot water, or steam setting back from a boiler, shall be paid to the Water Department by the consumer of the water, or the owner of the premises, whether the meter is owned by them or by the Water Department, and in case such payment is not so made, the water may be shut off from said premises without notice, and will not be turned on again until all charges are paid.

ACCESS TO METER.

The owner and tenant shall provide ready and convenient access to the meter so that it may be frequently read and examined by the agents of the Department.

PERMIT TO SET OR REMOVE METER.

No meter or elevator register shall be set or removed or disturbed without a permit from the Water Department.

All meters set on private premises shall be subject to the inspection and control of the Water Commissioners, or such agent or officer as they shall designate to have care and supervision of meters; and such agent or officer shall have free access at all times, for the purpose of reading the meter, testing the accuracy of its measurement and removing it if found incorrect.

If a meter gets out of order and fails to register, the consumer will

be charged at the daily average consumption as shown by the meter when in order.

All meters will be set by employes of the Commissioners, and shall not be moved or disturbed without permission from the Superintendent.

By a subsequent resolution, the cost of all meters and the expense of setting must be paid by the party desiring to use the same, except in places where set by order of the Board.

EXTRACT OF LAW RELATING TO WATER TAXES AND FRONTAGE TAXES.

Section 4 of chapter 229 of the Laws of 1875, entitled, "An Act supplementary to chapter 780 of the Laws of 1867," entitled "An Act to supply the City of Binghamton with pure and wholesome water, and the acts amendatory thereof," is hereby amended so as to read as follows:

The Water Commissioners of the City of Binghamton shall have the power and are hereby authorized to levy and collect a frontage tax in each and every year on all real estate lying along or facing on either side of every street or alley in which a water main is now laid, or may hereafter be laid; said frontage or fraction tax not to exceed in any one year 50 cents for each 25 feet frontage or fraction thereof, or of any and all tracts or parcels of land lying along or fronting on either side of said street or alley.

EXTRACTS FROM RULES OF WATER BOARD.

Persons taking water will do so at their own expense, and must keep their service pipe, stop-cock, and apparatus in good repair, protected from frost, and prevent all unnecessary waste of water.

In case of fraudulent representation on the part of the applicant, or unnecessary waste of water, the payment will be forfeited and the supply of water stopped.

All service pipes, including trench, tap, and connection, cut-off, curb boxes, and everything connected therewith, will be put in by the Water Commissioners, from the water main to the curb, and must be paid for by the owners.

Each fixture shall be subject to assessment until a licensed plumber has reported to the Secretary that it has been so capped, disconnected or detached as to prevent the use of city water.

The supply of water is liable to be shut off for non-payment of water rent and all expenses for shutting off and turning on must be paid before the water will be turned on.

Water will not be furnished any residence for baths, closets, hose, or any other purpose unless family rates are paid also.

No private yard hydrants will be allowed.

Persons removing from any premises, who have paid full rates in advance, will be entitled to an allowance for the unexpired term, provided notice is given at the office at the time of such removal.

The Water Commissioners, or their agents and assistants, may, at all reasonable hours, enter the premises of any water taker to examine the pipes and fixtures, the quantity of water used, and the manner of its use.

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